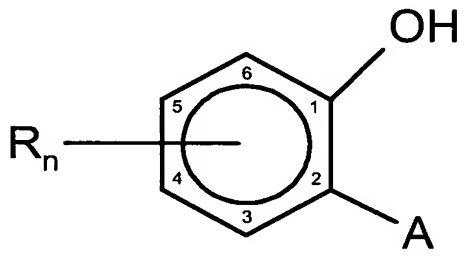
FIG. 1. Generalized Chemical structures and parameters defining the compounds of the invention.

Formula I – A chemical composition according to the formula



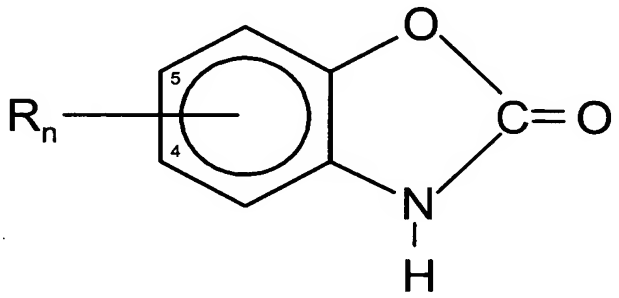
Wherein "R" represents C_1-C_4 alkoxy, with the proviso that R is in the 4 or 5 ring position;

Wherein "n" represents one of the integers 0,1 or 2;

Wherein "A" represents -OH, -NH_2, or NHCR', where R' represents C_1-C_4 alkyl;

or pharmaceutically acceptable salts thereof.

Formula II – A chemical composition according to the formula



Wherein "R" represents C_1-C_4 alkoxy, with the proviso that R is in the 5 or 6 ring position;

Wherein "n" represents one of the integers 0, 1 or 2;

or pharmaceutically acceptable salts thereof.

FIG. 1

Formula III -- A chemical composition according to the formula

Wherein "R" represents C_1-C_4 alkoxy, with the proviso that R is in the 6 or 7 ring position;

Wherein "n" represents one of the integers 0, 1 or 2;

or pharmaceutically acceptable salts thereof.

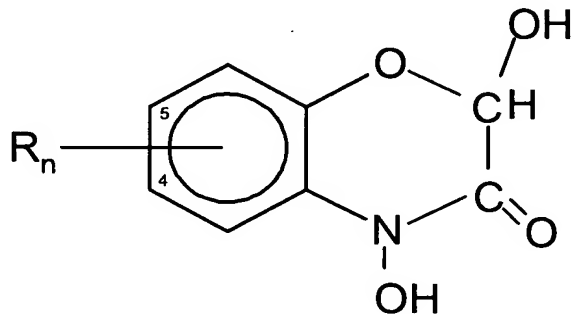
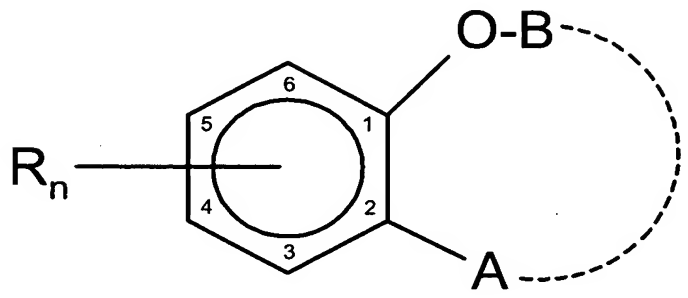


FIG. 1 (continued)

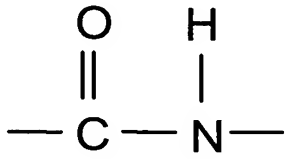
Formula IV -- A chemical composition according to the formula



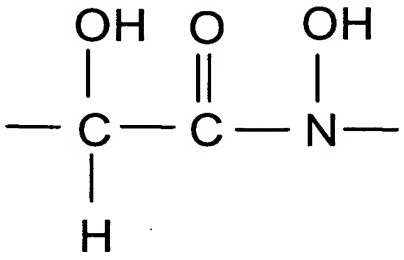
Wherein "R" represents C_1-C_4 alkoxy, with the proviso that R is in the 4 or 5 ring position;

Wherein "n" represents one of the integers 0, 1 or 2;

Wherein "B" represents H and "A" represents -OH, -NH2, or NHCR′, where R′ denotes C1-C4 alkyl; and "B A" represents



or

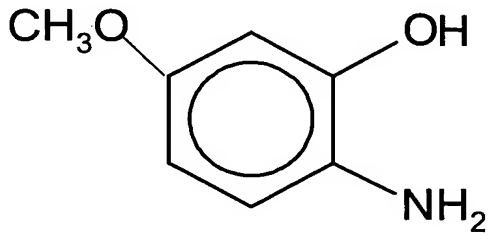


or pharmaceutically acceptable salts thereof.

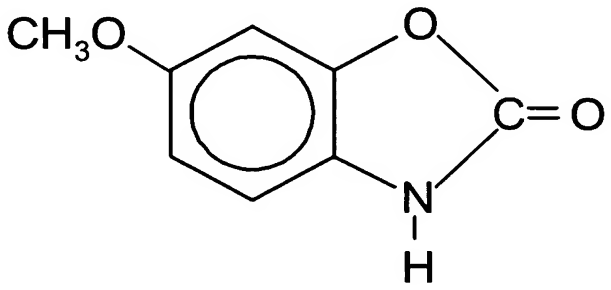
FIG. 1 (continued)

FIG. 2 Chemical structures for representative members of Formulas I, II and III. That members of Formulas I, II and III have similar effects on vertebrates is evidenced by Example 1. Such forms a foundation for members of Formulas I, II and III to be collectively unified under Formula IV as compounds of the invention.

1. 2-amino-5-methoxyphenol [Member of Formula I]



2. 6-methoxy-2-benzoxazolinone [Member of Formula II]



3. 2,4-dihydroxy-7-methoxy-1,4-(2H)-benzoxazin-3-one [Member of Formula III]

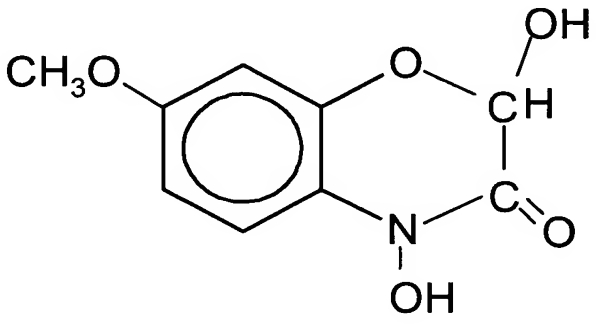
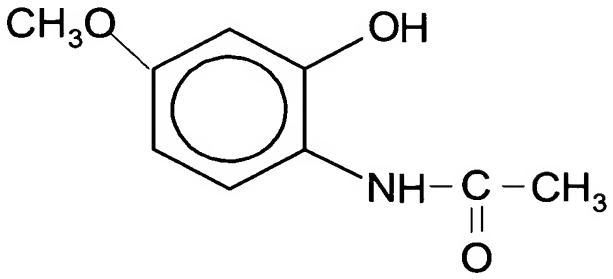
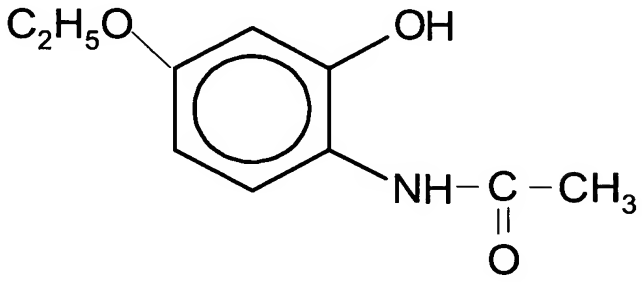


FIG. 2

4. 2-hydroxy-4-methoxyacetanilide [Member of Formula I]



5. 2-hydroxy-4-ethoxyacetanilide [Member of Formula I]



6. 5-methoxy-2-benzoxazolinone [Member of Formula III]

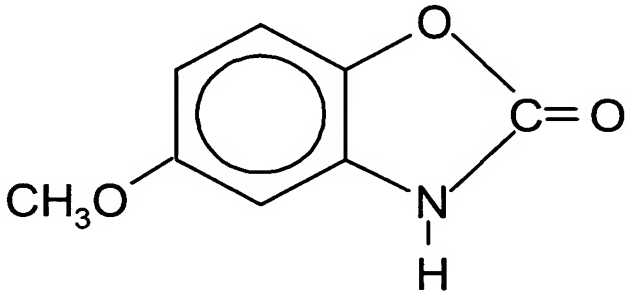


FIG. 2 (continued)

7. 2-hydroxy-5-methoxyacetanilide [Member of Formula I]

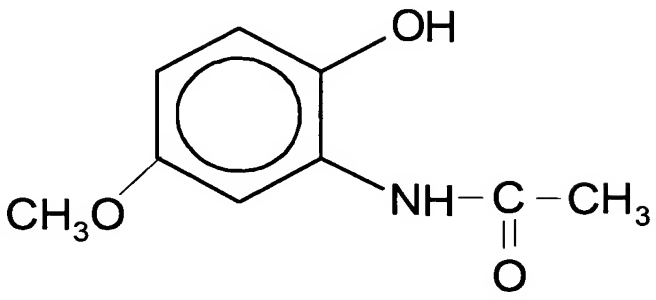


FIG. 2 (continued)

FIG. 3. Effect of injecting compounds of the invention, members of Formulas I, II and III as defined in FIG. 1 and FIG. 2, intraperitoneally for 3 consecutive days and sacrificing 24 hours after the last injection on uterine weight in the montane vole, Microtus montanus. The results indicated similar physiological responses for compounds belonging to the compounds of the invention. "Formula Numeral" refers to the formula categories specified in FIG. 1. Average uterine weight is in milligrams.

Compound Injected	Formula Numeral	Number of Animals	Average Uterine Weight
Control (Propylene Glycol)	---	8	15.2±2.4
6-methoxy-2-benzoxazolinone	II	11	27.7±5.6*
5-methoxy-2-benzoxazolinone	III	8	20.0±4.7**
2-hydroxy-4-methoxyacetanilide	I	8	23.1±2.7*
2-hydroxy-4-ethoxyacetanilide	I	8	22.2±3.9*
2-amino-5-methoxyphenol	I	8	21.8±3.5*
2-hydroxy-5-methoxyacetanilide	I	8	21.1±4.4***
2-amino-4-methoxyphenol	I	8	22.2±3.2*

* Significantly different from control at P <0.001

** Significantly different from control at P<0.015

*** Significantly different from control at P=0.004

FIG. 3

FIG. 4. HAD and ASEX summaries for administration of the compounds of invention to adult males. The HAD value precedes the ASEX one, and these are separated from each other by a comma. Compounds of the invention had a significant positive effect on depression or feelings of well-being.

	With Compounds of Invention:		With Placebo:	
Participant	Initial Value	After Two-Weeks	Initial Value	After Two-Weeks
1	9.0, 12.0	8.0, 11.0	8.0, 10.0	8.0, 13.0
2	16.0, 13.0	14.0, 12.0	16.0, 13.0	16.0, 15.0
3	15.0, 10.0	9.0, 11.0	15.0, 14.0	17.0, 14.0
4	12.0, 9.0	7.0, 10.0	9.0, 10.0	9.0, 12.0
5	14.0, 10.0	10.0, 10.0	12.0, 10.0	14.0, 10.0
6	Participant not reliable – Data incomplete and deleted from study			
7	12.0, 9.0	7.0, 9.0	9.0, 10.0	8.0, 9.0
8	12.0, 11.0	8.0, 11.0	12.0, 11.0	12.0, 10.0
9	12.0, 15.0	12.0, 10.0	7.0, 10.0	7.0, 10.0
10	4.0, 15.0	0.0, 13.0	9.0, 12.0	12.0, 12.0
11	21.0, 10.0	6.0, 10.0	9.0, 12.0	12.0, 12.0
12	13.0, 9.0	2.0, 9.0	13.0, 9.0	13.0, 9.0
13	14.0, 12.0	13.0, 13.0	12.0, 10.0	12.0, 10.0
14	12.0, 10.0	13.0, 10.0	18.0, 7.0	16.0, 7.0
15	23.0, 8.0	18.0, 9.0	16.0, 9.0	16.0, 8.0
Average	13.5, 10.9	9.1, 10.4	11.8, 10.5	12.3, 10.8

Two-Sample Paired Sign Test – This is one of the stronger or more reliable statistical tests when significance is detected. The question is whether INVENTION affects feelings of well-being or sexual function. The Sign-Test is used to statistically ask "how often compounds of invention impact feelings of well being and/or sexual function". Results are as follows:

HAD (with invention), $p<0.003$, Very Significant
ASEX (with invention, $p<0.727$, Not Significant
HAD (with placebo), $p<0.688$, Not Significant
ASEX (with placebo), $p<1.310$, Not Significant

FIG. 4

FIG. 5. HAD summary for clinically-depressed females taking compounds of the invention for six weeks. HAD values were ascertained at the onset and end of the trial period. Note that all participants had HAD scores at the onset verifying clinical depression. Only two females scored as clinically depressed after six weeks. Albeit few people in the trial, compounds of invention still had a significant positive effect on lessening depression.

Participant[1]	Initial Value	After Six-Weeks
1	23.0	18.0
2	21.0	8.0
3	21.0	21.0
4	24.0	14.0
5	22.0	12.0
6	21.0	13.0
7	23.0	7.0
8	20.0	22.0
Average	21.9	14.4

[1] Participants 1-4 initially [Weeks 1-2] were given compounds of invention under guise of its being a vitamin / mineral mixture.

Two-Sample Paired Sign Test – This is one of the stronger or more reliable statistical tests when significance is detected. The question is whether compounds of invention affect depression or feelings of well-being. The Sign-Test is used to statistically ask "how often compounds of invention positively impact depression or feelings of well being". Results are as follows:

HAD, $p<0.0313$, Significant

FIG. 5

FIG. 6. 6-MBOA in Dried Velvet Antler from Elk, Cervus elaphus.

Animal	Origin	Tip or Other	Drying Method	6-MBOA (mg/g dry weight)
Wapiti	Canada	Tip	Air	2.5
Wapiti	Canada	Tip	Air	2.8
Wapiti	Canada	Other	Air	0.3
Red Deer	New Zealand	Tip	Freeze	1.9
Red Deer	New Zealand	Other	Freeze	0.5

FIG. 6

FIG. 7. Weight and body mass indicies before and after a 30-day administration of compounds of the invention or a control. The test group was given compounds of the invention packaged in gelatin capsules. The dosage was standardized to 6-MBOA content for which the total dail dose was 90 micrograms (μg). The control group took ground, dried parsley leaves in gelatin capsules. Body Mass Index (BMI) is equal to weight in kilograms divided by height in meters squared (m^2).[1] The Wilcoxon-Mann-Whitney U Test was used to assess differences between the test and control groups.[2] F = female; M = male; cm = centimeters; kg = kilograms; Avg. = average

			Weight (kg)			Body Mass Index (BMI)		
	Sex	Height (cm)	Beginning	30 Days	Difference	Beginning	30 Days	Difference
Test Group	F	165	74.9	73.5	-1.4	27.5	27.0	-0.5
	F	175	81.7	83.0	+1.3	26.6	27.1	+0.5
	F	173	89.0	87.5	-1.5	29.8	29.2	-0.6
	F	173	91.3	88.7	-2.6	30.6	29.6	-1.0
	F	175	79.9	78.8	-1.1	26.0	25.7	-0.3
	F	175	81.3	78.4	-2.9	26.4	25.6	-0.8
	F	168	84.0	82.6	-1.4	29.9	29.3	-0.6
	M	178	78.5	78.8	+0.3	24.8	24.9	+0.1
	M	175	85.8	86.7	+0.9	27.9	28.3	+0.4
	M	178	89.9	88.4	-1.5	28.4	27.9	-0.5
Avg.		173.5	83.6	82.6	-0.9	27.8	27.5	-0.3
Control Group	F	178	80.4	80.0	-0.4	25.4	25.2	-0.2
	F	163	82.2	82.8	+0.6	31.1	31.2	+0.1
	F	173	89.4	88.0	-1.4	30.0	29.4	-0.6
	F	178	89.9	90.3	+0.4	28.4	28.5	+0.1
	F	175	87.2	87.6	+0.4	28.4	28.6	+0.2
	F	173	79.0	77.7	-1.3	26.5	26.0	-0.5
	F	170	83.5	83.0	-0.5	28.8	28.7	-0.1
	M	180	90.8	91.5	+0.7	28.0	28.2	-0.2
	M	183	99.9	99.4	-0.5	29.8	29.7	-0.1
	M	185	94.9	95.7	+0.8	27.6	28.0	+0.4
Avg.		175.8	87.7	87.6	-0.1	28.4	28.4	-0.1

[1] $\text{BMI} = \frac{\text{Weight in Kilograms}}{(\text{Height in Meters}) \times (\text{Height in Meters})} = \text{kg/m}^2$

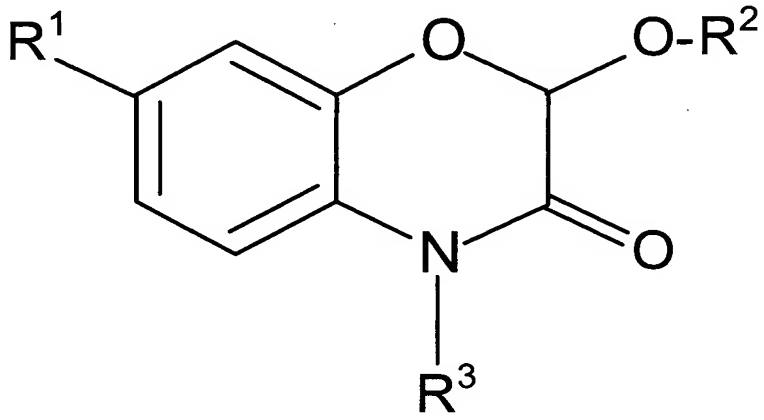
[2] With 20 participants equally divided into two groups, homogeneity of variance and normal distributions, data attributes required by most parametric statistics, could not be assumed. Thus, a nonparametric test, the Mann-Whitney U Test, was used to compare the equivalency of changes in the Test and Control Groups. For the Wilcoxon-Mann-Whitney U Test, the value calculated for determining significance is called the "U" Statistic:

- Test Group Weight "Beginning" versus Control Group Weight "Beginning" U = 32.5, P = 0.10 (Not Significant)
- Test Group Weight "30 Days" versus Control Group Weight "30 Days" U = 28.5, P = 0.05 (Significant)
- Test Group Weight "Difference" versus Control Group Weight "Difference" U = 27.0, P = 0.04 (Significant)
- The results indicate that the compounds of invention have genuine weight loss attributes.

FIG. 7

Figure 8. Generalized chemical structures defining alternative embodiments of compounds of the invention.

Formula V – A compound according to the formula:



Wherein "R^1" is selected from the group consisting of H and OCH_3;

Wherein "R^2" is selected from the group consisting of H and Glucose (as a glucoside)

Wherein "R^3" is selected from the group consisting of H, OH, and OCH_3; or

pharmaceutically acceptable salts thereof.

FIG. 8

Figure 9. Chemical structures for representative members of Formula V.

Figure 9a. 2,4-dihydroxy-1,4-benzoxazin-3-one (DIBOA)

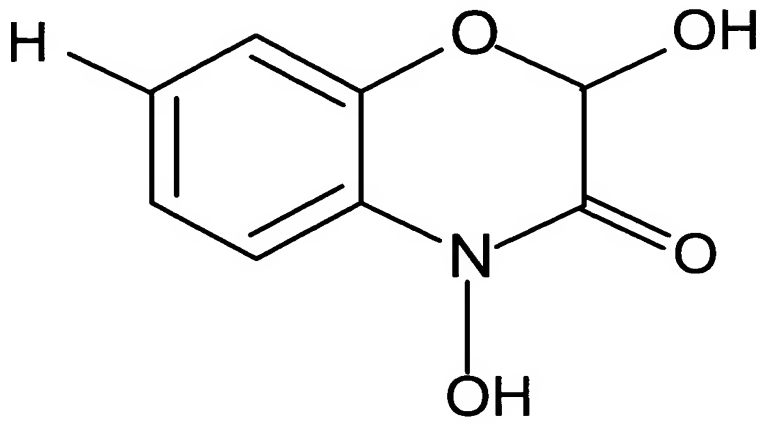


Figure 9b. 2,4-dihydroxy-1,4-benzoxazin-3-one-glucoside (DIBOA-Glc)

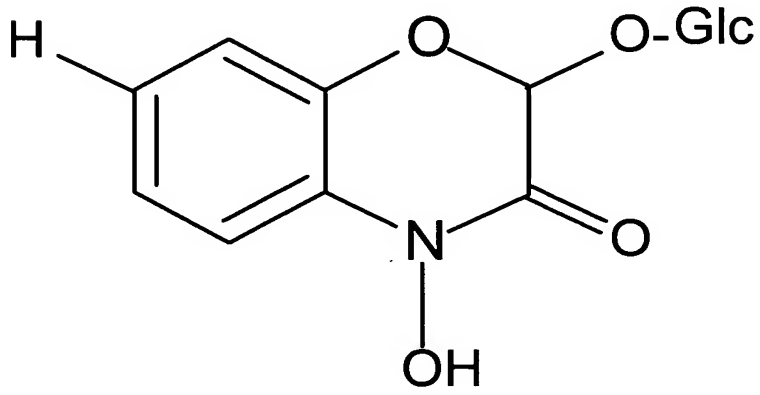


FIG. 9

Figure 9c. 2,4-dihydroxy-7-methoxy-1,4-benzoxazin-3-one (DIMBOA)

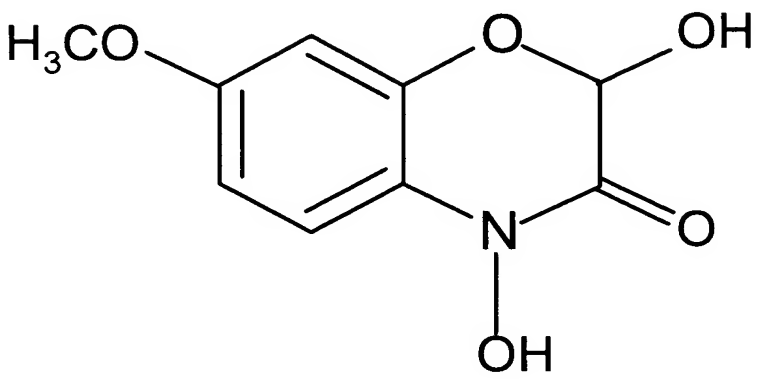


Figure 9d. 2,4-dihydroxy-7-methoxy-1,4-benzoxazin-3-one-glucoside (DIMBOA-Glc)

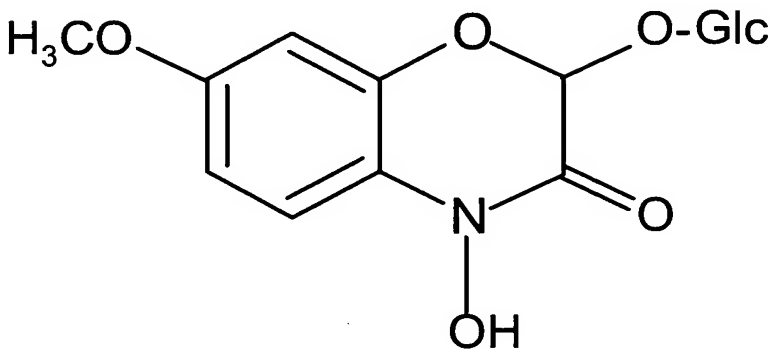


FIG. 9 (continu d)

Figure 9e. 2-hydroxy-1,4-benzoxazin-3-one (HBOA)

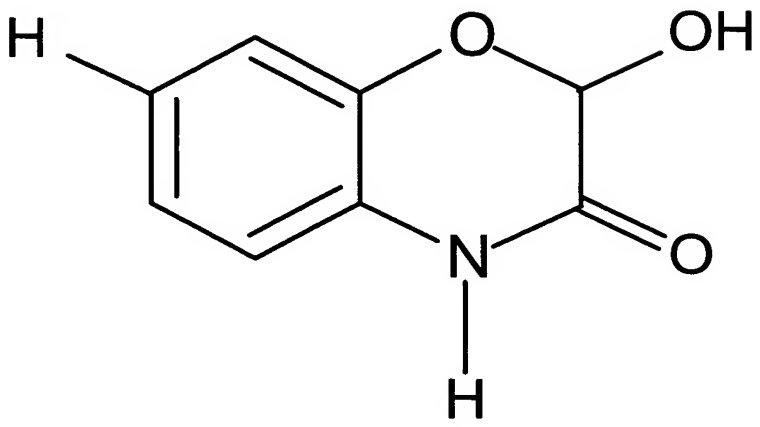


Figure 9f. 2-hydroxy-1,4-benzoxazin-3-one-glucoside (HBOA-Glc)

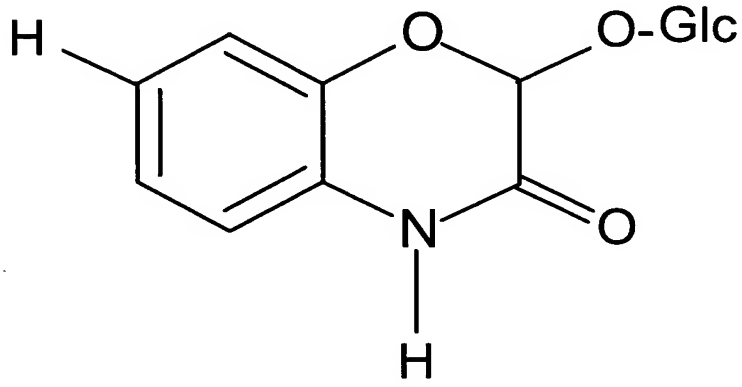


FIG. 9 (continued)

Figure 9g. 2-hydroxy-7-methoxy-1,4-benzoxazin-3-one (HMBOA)

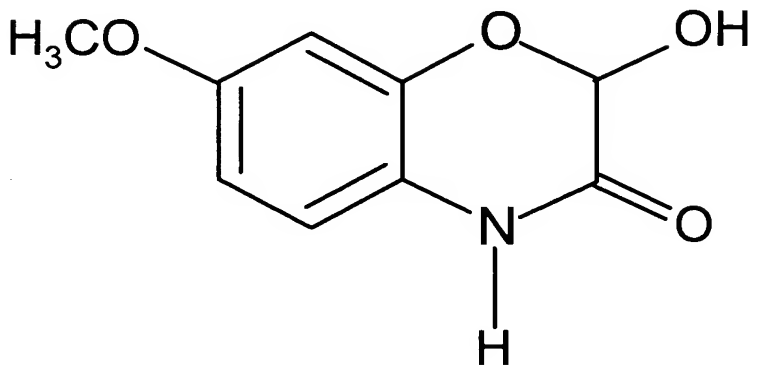


Figure 9h. 2-hydroxy-7-methoxy-1,4-benzoxazin-3-one-glucoside (HMBOA-Glc)

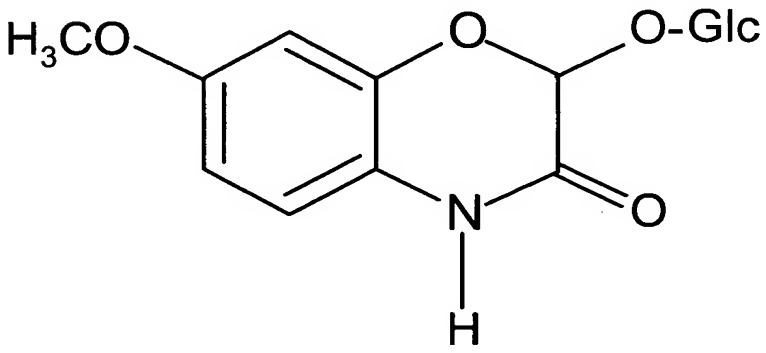


FIG. 9 (continued)

Figure 9i. 2-hydroxy-4,7-dimethoxy-1,4-benzoxazin-3-one (HDMBOA)

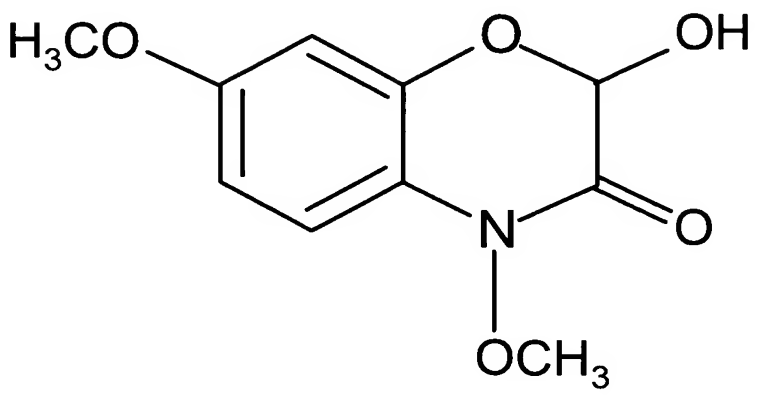


Figure 9j. 2-hydroxy-4,7-dimethoxy-1,4-benzoxazin-3-one-glucoside (HDMBOA-Glc)

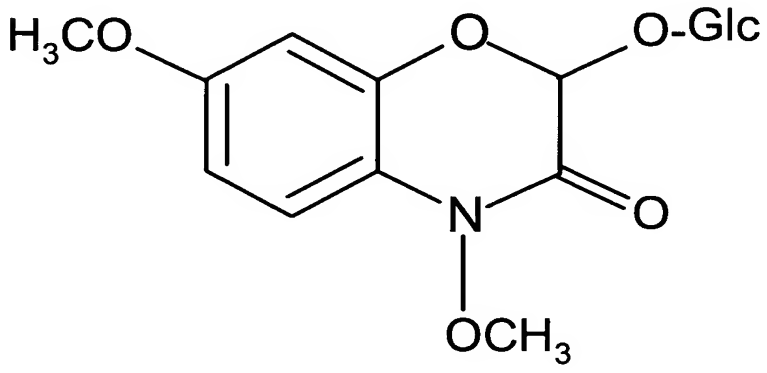


FIG. 9 (continued)